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Non-descriptive inspection systems using ultrasonics (ultrasonic inspection systems) are used in various fields of inspection of steel, metal, etc., and inspection of semiconductors in recent years. They are used in various departments as field inline inspection tools and research and development tools. They have various shapes such as handy types that are portable by the inspector and installation types that are installed in the field. A representative system configuration is shown in FIG. 1.

Page 1, please delete the third full paragraph bridging pages 1 and 2, and replace it with the following new paragraph:

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FIG. 1 is a block diagram of an ultrasonic inspection system. An ultrasonic probe 1 (simply, probe) is a sensor section for transmitting and receiving ultrasonics. An ultrasonic transmission/reception circuit 2 (simply, transmission/reception circuit) is a circuit for transmitting and receiving ultrasonics to and from the probe 1. Normally, the transmission/reception circuit 2 excites a piezoelectric vibrator in the probe 1 by a high-pressure impulse signal for generating (transmitting) ultrasonics and amplifies a minute signal received at the piezoelectric vibrator to a predetermined voltage signal level by an amplifier. A waveform processing circuit 3 is a processing section for displaying the inspection result based on a received waveform. For example, the waveform processing circuit 3 takes out a part of the waveform by a gate circuit, extracts the maximum value, and compares the value with a predetermined determination level, thereby determining the inspection result. It also displays the extracted maximum values as light and dark values in order at predetermined positions of a display section 4, thereby forming an ultrasonic image. A control section 5 controls the

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transmission/reception circuit 2 and the waveform processing circuit 3. In recent years, a personal computer (PC) has often been used as the control section 5.

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An ultrasonic inspection system of the installation type comprises a transporter for moving the system, a scanner for changing the position of a probe or a sample, and the like in addition to the above-described members. Although one probe is used in the description, two probes are used in an inspection method with separate probes for transmission and reception (2-probe method). For a large specimen used on a steel line, etc., the number of probes may range from several tens to several hundreds.

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In the related art described above, the waveform processing circuit 3 uses various signal processing software programs in response to specimens to analyze and determine ultrasonic reception signals. However, for large specimens used in fields of steel, etc., the number of probes may extend to several hundreds, in which case software for analyzing and determining ultrasonic reception signals and storing continuous data becomes enormous. Further, high-speed and large-capacity computer hardware of a CPU, memory, storage media, etc., becomes necessary to analyze and determine ultrasonic reception signals and store continuous data, largely pushing up the whole system costs. For example, even a comparatively small ultrasonic inspection system of the handy type, etc., comprises ultrasonic reception signal analysis and

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determination means, thus can collect inspection data, but if an attempt is made to continuously store and manage data of the inspection results, etc., with the ultrasonic inspection system, a problem similar to that described above arises.

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If trouble occurs in an ultrasonic inspection system, it must be repaired by an expert maintenance person. Upon reception of a notification of trouble occurrence, it is desired that an expert maintenance person asks the customer about the symptom of the trouble by telephone and narrows the trouble down to a few points. However, it is often impossible for the maintenance person to locate the failure portion of the system in such a hearing. Therefore, usually the maintenance person first goes to the installation place of the system, checks for the trouble symptom, once returns to the maintenance station, gets a complete set of replacement parts responsive to the symptom, again goes to the installation place of the system, and repairs the system. Thus, it takes much time and a large cost required for the maintenance person to repair the system.

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The invention is characterized by the fact that in a ultrasonic inspection system comprising a probe and a system main body comprising a ultrasonic transmission/reception circuit for exciting the probe and receiving a signal therefrom, a waveform processing circuit for processing a signal from the ultrasonic transmission/reception circuit, and a control section for

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controlling the operation of the ultrasonic transmission/reception circuit and the waveform processing circuit, an ultrasonic inspection system diagnosis method comprises the steps of connecting the probe to the ultrasonic transmission/reception circuit, making the probe opposed to a test object, exciting the probe for outputting ultrasonics, collecting at least one of data output from the ultrasonic transmission/reception circuit and data output from the waveform processing circuit based on a reflected wave signal of the ultrasonics, disconnecting the probe from the ultrasonic transmission/reception circuit, collecting at least one of data output from the ultrasonic transmission/reception circuit and data output from the waveform processing circuit when a test signal is fed into the ultrasonic transmission/reception circuit, and diagnosing the ultrasonic inspection system based on the collected data.

**Page 8, please delete the paragraph bridging pages 8 and 9, and replace it with the following new paragraph:**

The invention is characterized by the fact that in an ultrasonic inspection system comprising a probe and a system main body comprising an ultrasonic transmission/reception circuit for exciting the probe and receiving a signal therefrom, a waveform processing circuit for processing a signal from the ultrasonic transmission/reception circuit, and a control section for controlling the operation of the ultrasonic transmission/reception circuit and the waveform processing circuit, an ultrasonic inspection system diagnosis system comprises positioning means for making the probe opposed to a test object with the probe connected to the ultrasonic transmission/reception circuit, probe excitation means for exciting the probe with the probe opposed to the test object, first data collection means for collecting at least one of data output

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from the ultrasonic transmission/reception circuit and data output from the waveform processing circuit when the probe is excited by the probe excitation means, test signal output means for feeding a test signal into the ultrasonic transmission/reception circuit with the probe disconnected from the ultrasonic transmission/reception circuit, second data collection means for collecting at least either of data output from the ultrasonic transmission/reception circuit and data output from the waveform processing circuit when a test signal is output by the test signal output means, and determination means for determining whether or not an abnormality is contained in the ultrasonic inspection system based on the output data collected by the first data collection means and the second data collection means.

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Page 9, please delete the third full paragraph bridging pages 9 and 10, and replace it with the following new paragraph:

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According to the invention, there is provided an ultrasonic inspection system having an ultrasonic probe data management function for transmitting and receiving ultrasonics with one selected from ultrasonic probes and inspecting a specimen based on a received ultrasonic signal, the system comprising a computer connected to one or more ultrasonic inspection systems by a transmission line, probe data collection means for collecting characteristic data of the ultrasonic probes contained in the computer, and a storage section for storing the characteristic data collected by the probe data collection means.

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Page 12, please delete the first full paragraph, and replace it with the following new paragraph: